

WHAT IS CLAIMED IS:

1. Vacuum pumping apparatus comprising:

a scroll set having an inlet and an outlet, said scroll set comprising a stationary scroll element including a stationary scroll blade extending from a single side of a stationary plate and

5 an orbiting scroll element including an orbiting scroll blade extending from a single side of an orbiting plate to form a single-sided scroll set, wherein said stationary and orbiting scroll blades are intermeshed together to define one or more interblade pockets; and

a drive mechanism operatively coupled to said orbiting scroll element for producing orbiting motion of said orbiting scroll blade relative to said stationary scroll blade so as to cause 10 said one or more interblade pockets to move toward said outlet, said drive mechanism including a motor and a crankshaft having an axis of rotation, and an orbiting bearing coupled between said crankshaft and said orbiting plate, wherein the scroll set is configured such that an imaginary plane perpendicular to the axis of rotation passes through the orbiting bearing and at least a portion of the orbiting scroll blade.

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2. Vacuum pumping apparatus as defined in claim 1, wherein said scroll set includes a first pumping stage in series with a second pumping stage and wherein the imaginary plane passes through at least a portion of the first pumping stage.

20 3. Vacuum pumping apparatus as defined in claim 2, wherein the first pumping stage has a first axial depth and the second pumping stage has a second axial depth, wherein the first axial depth is greater than the second axial depth and wherein the stationary scroll blade of the first pumping stage and the stationary scroll blade of the second pumping stage extend axially from a common plane of the stationary plate toward the drive mechanism.

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4. Vacuum pumping apparatus as defined in claim 1, wherein said crankshaft includes an eccentric portion and said orbiting bearing is coupled between the eccentric portion of said crankshaft and said orbiting plate.

30 5. Vacuum pumping apparatus as defined in claim 1, further comprising a counterweight assembly connected to said crankshaft.

6. Vacuum pumping apparatus as defined in claim 5, wherein said counterweight assembly comprises a single counterweight.

7. Vacuum pumping apparatus as defined in claim 5, wherein said counterweight assembly comprises at least two counterweights.

5 8. Vacuum pumping apparatus as defined in claim 5, wherein the imaginary plane passes through at least a portion of the counterweight assembly.

9. A compact scroll pump comprising:

10 a scroll set having an inlet and an outlet, said scroll set comprising a stationary scroll element including a stationary scroll blade extending from a stationary plate and an orbiting scroll element including an orbiting scroll blade extending from an orbiting plate, wherein said stationary and orbiting scroll blades are intermeshed together to define one or more interblade pockets and wherein said orbiting scroll blade is located on a first side of said orbiting plate; and

15 a drive mechanism operatively coupled to a second side of said orbiting plate for producing orbiting motion of said orbiting scroll blade relative to said stationary scroll blade so as to cause said one or more interblade pockets to move toward said outlet, said drive mechanism including a motor and a crankshaft having an axis of rotation, and an orbiting bearing coupled between said crankshaft and said orbiting plate, wherein the scroll set is configured such that an imaginary plane perpendicular to the axis of rotation passes through the 20 orbiting bearing and at least a portion of the orbiting scroll blade.

10. A compact scroll pump as defined in claim 9, wherein said scroll set includes a first pumping stage in series with a second pumping stage and wherein the imaginary plane passes through at least a portion of the first stage.

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11. A compact scroll pump as defined in claim 10, wherein the first pumping stage has a first axial depth and the second pumping stage has a second axial depth, wherein the first axial depth is greater than the second axial depth and wherein the stationary scroll blade of the first pumping stage and the stationary scroll blade of the second pumping stage extend axially from a common 30 plane of the stationary plate toward the drive mechanism.

12. A compact scroll pump as defined in claim 9, wherein said crankshaft includes an eccentric portion and said orbiting bearing is coupled between the eccentric portion of said crankshaft and said orbiting plate.

13. A compact scroll pump as defined in claim 9, further comprising a counterweight assembly connected to said crankshaft.

5 14. A compact scroll pump as defined in claim 13, wherein said counterweight assembly comprises a single counterweight.

15. A compact scroll pump as defined in claim 13, wherein said counterweight assembly comprises at least two counterweights.

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16. A compact scroll pump as defined in claim 13, wherein the imaginary plane passes through at least a portion of the counterweight assembly.